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ABSTRACT

Using a statewide sample of prospective teachers' results on the National Teacher Examinations (NTE), the investigation probed relationships between NTE Composite Scores, Weighted Common Examination Total (WCET) scores, and WCET subscores with selected predictor variables, specifically, American College Testing (ACT) Composite and Area Scores. Data were collected to describe the performance of Louisiana's potential teachers on the NTE and the ACT. Correlation coefficients were calculated for ACT and NTE scores and subscores. Weighted mean scores of Louisiana's students, grouped by level of certification, and state means for the entire sample on the Common Examinations of the NTE and its subdivisions were calculated, and comparisons were made of the distribution of scores grouped by level of certification. Mean scores of Lousiana's students, grouped by level of certification, and state means for the entire sample on the ACT and its areas were calculated, and comparisons were made of the distribution of scores grouped by level of certification. Levels of certification were elementary, secondary, or vocational and K-12. (Author/CM)

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PROSPECTIVE TEACHERS' PERFORMANCE ON THE NATIONAL TEACHER EXAMINATIONS AND THE AMERICAN COLLEGE TEST

by

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PROSPECTIVE TEACHERS' PERFORMANCE ON THE NATIONAL TEACHER EXAMINATIONS AND THE AMERICAN COLLEGE TEST

Teacher certification, a debatable concept for years, has recently received sharp attack on both the political and social fronts. Reports of declining American College Test (ACT) scores, coupled with reports of drops in student performance on National Assessment Tests, have focused attention upon the process of licensing of teachers. Legal actions by both parents and teachers have been filed against schools and school systems for failing to provide an appropriate education and have thus sharpened the attack on the process of teacher certification.

In an attempt to improve the quality of teachers entering the profession, certification agencies have begun to incorporate competency-testing into certification requirements. Today, at least twenty-two states require that prospective teachers take the National Teacher Examination (NTE) either for certification purposes, salary increases, or for job retention purposes. Of these twenty-two states, seven require attainment of defined minimum scores on the NTE for certification purposes (Tarver, 1980).

Phase One of the Teacher Proficiency and Performance research project has been built on the preliminary work accomplished by Tarver (1980). Using a statewide sample of prospective teachers' results on the NTE, the investigation probed the relationships between NTE Composite scores, WCET scores, and WCET subscores with selected predictor variables, specifically, ACT Composite scores and ACT Area Scores.

Subject descriptive data were used to partition the sample into subgroups in order to investigate differences existing among subgroups' NTE scores and subscores. Results of the data analysis have provided information for use in arriving at informed decisions about the performance of prospective teachers on the National Teacher Examinations. The outcomes of this investigation provide a useful basis for advising and counseling students seeking entrance in the teaching profession.

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Population and Sample

The sample used in this study was drawn from those students who had been enrolled in the Department/College of Education as undergraduate students in state-supported colleges and universities in Louisiana. These prospective teachers were candidates for a degree in teacher education and were seeking initial teacher certification, under Louisiana Certification requirements, in one or more teaching areas. This sample took the National Teacher Examinations (NTE) and graduated from a Department/College of Education of an approved, public , four-year college/university in Louisiana between the Fall of 1978 and the summer of 1981, inclusive. Fall 1978 was the beginning date for inclusion in the study because November, 1978, was the beginning date for the requirement of attained NTE scores for initial teacher certification in Louisiana.

Subjects included in the sample had on file with Educational Testing Service the following NTE scores and subscores:

1. NTE Composite scores;
2. Weighted Common Examinations Total (WCET) scores; and
3. WCET subscores in each of the following areas: (a) Professional Education; (b) Written English Expression; (c) Literature, Fine Arts, and Social Studies; and (d) Science and Mathematics.

In addition there were on record at the institution of attendance at least the following data:

1. Level of intended Certification; and
2. American College Test (ACT) Composite scores and area scores, where available.

The composition of the population* was 81.1% Caucasian and 18.9% Other. Since eleven of the thirteen universities possibly included in this study agreed to participate, the composition of the sample was 86.5% Caucasuian and 15.3% Other.

*Based upon graduation numbers provided by each of the 13 universities to the Bureau of Teacher Certification, Louisiana Department of Education.

Explanation of Variables

Data gathered on the sample (N=5,642) from the participating colleges/universities included each graduate's (a) Level of intended certification, and (b) ACT Composite score and area scores, where available.

Level of intended certification was based on the state-approved levels in which a prospective teacher may be certified (Louisiana Standards, 1980). These five levels of certification are (a) Early Childhood Education Certification, which allows one to teach grades K-3; (b) Elementary Education Certification, which allows one to teach grades 1-8; (c) Secondary Education Certification, which allows one to teach grades 7-12; (d) K-12 Certification, which allows one to teach all grades; and (e) Vocational/Technical Education Certification, which allows one to teach vocational-technical classes at all levels. Level of Certification, as used in data analysis for this study, refers to one of the three following levels:

1. Elementary Certification, which includes Early Childhood Certification and Major Teaching area and Elementary Education Certification and Major Teaching area;
2. Vocational and K-12 Certification, which includes K-12 Certification and Vocational-Technical Certification. This level includes the following Major Teaching areas: Physical Education, Music, Art, Special Education, Home Ecomomics, Business, Agriculture, and Industrial Arts;
3. Secondary Certification, which includes the following Major Teaching areas: English, Foreign Languages, Journalism, Mathematics, General Science, Biology, Chemistry, Earth Science, Physics, Social Studies, and Speech.

American College Test (ACT) scores gathered or supplied by the American College Testing Program were in the form of standard scores for ACT Composite and for each of the four areas of ACT Composite: (a) English, (b) Mathematics, (c) Social Studies, and (d) Natural Sciences. All data were coded on a data collection instrument.

NTE scores used were (a) Composite NTE score, (b) Common Examinations score (WCET), and (c) scores on the subareas of the WCET (Professional Education;

Written English Expression; Literature, Fine Arts, and Social Studies; and Science and Mathematics). WCET scores and subscores used in this study were computed from results of the initial test results for each member of the sample. Composite NTE scores were computed using initial WCET scores and initial Area scores to reduce the effect of testing on subject scores. NTE scores and subscores were provided by Educational Testing Service.

Procedure

The appropriate administrative officers (usually the Dean of Education) at each of the thirteen public colleges/universities with approved teacher education programs in Louisiana were contacted for permission to use data from their graduates in the study. Each administrative officer was contacted personally. The research study and use of the results of the data analysis were explained. Letters of consent were signed by eleven of the thirteen colleges/universities contacted. These consent letters gave the research team permission to use examinees' NTE scores and institutional data on each examinee. Neither Southern University in Baton Rouge nor Southern University in New Orleans agreed to cooperate in the research project.

Following receipt of consent letters from institutional administrative officers, descriptive and predictor variable data were accumulated for each of the participating institutions. An institutional representative was retained on each of the participating campuses as an institutional liaison person. This individual served as the contact person for the research team and was responsible for locating, clearing, and collecting demographic and predictor variable data for each examinee.

Trained research teams, comprised of a team leader and five to eight team members, computed and recorded data at each of the participating institutions. Each research team was supervised for accuracy of data collection.

American College Testing (ACT) data were not available at participating institutions for approximately half of the sample. The American College Testing Program was contacted, and, in adherence with Buckley Amendment Guidelines, supplied ACT data on examinees for those institutions participating in this study. If, however, an examinee had not indicated to ACT that his/her ACT scores be received by any of the participating institutions, then ACT would not release that examinee's ACT scores. ACT scores were in the form of standard scores and included ACT Composite score and scores for each of the four areas of ACT: (a) English, (b) Mathematics, (c) Social Studies, and (d) Natural Sciences. ACT data were secured for 4,463 examinees, supplied by either the participating institution or by ACT.

To obtain results of examinees' National Teacher Examinations (NTE) scores and subscores, Educational Testing Service (ETS) was contacted, and, in adherence with Buckley Amendment Guidelines, supplied NTE data on examinees for those institutions participating in this study. If, however, an examinee had not indicated to ETS that his/her NTE scores be received by any of the participating institutions, the ETS would not release that examinee's NTE scores. NTE scores and subscores supplied for each examinee were Composite NTE score, Common Examinations score (WCET), and WCET subscores in each of the following areas: (a) Professional Education; (b) Written English Expression; (c) Literature, Fine Arts, and Social Studies; and (d) Science and Mathematics. Thus, for a sample of 5,643, ACT data were available on 4,682, and a complete set of NTE scores was available for 4,409 examinees.

Data gathered from each of the participating institutions were coded, key-punched, and compiled into single computer data bank. NTE and ACT data on each participating university were coded on a computer tape and, using the same subject code as that used for the institutional data, were matched with data gathered at the institutions by the research teams.

Using the Statistical Analysis System (SAS) package, multiple correlations and regression analysis were employed to determine the strength of the relationship between each predictor variable and combination of predictor variables and NTE Composite scores or subscores. Descriptive data were used to partition the sample into subgroups for purposes of comparison. Multiple analysis of variance techniques were used to compare the performance of subgroups. Final results of the analysis, along with descriptive data, are reported in narrative, tabular, and chart forms.

Description of the Performance of Louisiana's Potential Teachers on the National Teacher Examinations and on the American College

Data were collected to describe the performance of Louisiana's potential teachers on the National Teacher Examinations (NTE) and the American College Test (ACT). As indicated in Table 1, the mean Composite score for Louisiana's potential teachers(N=4,409) on the NTE was 1179.72. The mean score on the Common Examinations (WCET) was 564.82. The mean scores of Louisiana's potential teachers on the subdivisions of the Common Examinations (N=4,682) were as follows: Professional Education (PE), 56.98; Written English Expression (WEE) 56.88; Literature, Fine Arts, and Social Studies (LFASS), 54.43; and Science and Mathematics (SM), 57.47.

Mean ACT scores for Louisiana's examinees varied from a low of 15.78 in Social Studies to a high of 18.83 in Natural Sciences, with mean ACT English ($\bar{X}$=17.98) and mean ACT Mathematics ($\bar{X}$=16.47) falling in between. The mean Composite ACT score for Louisiana's potential teachers was 17.39. Of the various ACT scores, ACT Composite scores and Social Studies scores correlated highest with NTE scores and subscores. The correlation between ACT English and WEE was .69; between ACT Mathematics and SM, .63; between ACT Social Studies and LFASS, .68; and between ACT Science and SM, .66. ACT Composite scores correlated .79 with WCET scores and .75 with NTE Composite scores.

Table 1

Size, Means, and Standard Deviations of Louisiana's Potential Teachers on the National Teacher Examinations (NTE) and the American College Test (ACT)

Variable	Number	Mean	Standard Deviation
NTE Composite	4409	1179.72	153.59
NTE Area Exam	4436	614.52	81.30
NTE Common Exam	4682	564.82	83.18
PE	4682	56.98	9.48
WEE	4682	56.88	9.72
LFASS	4682	54.43	9.90
SM	4682	57.47	9.48
ACT English	4463	17.98	4.96
ACT Mathematics	4463	16.47	6.67
ACT Social Studies	4463	15.78	7.04
ACT Natural Sciences	4463	18.83	5.75
ACT Composite	4463	17.39	5.17

CODE KEY

PE--------Professional Education Subdivision of the Common Examinations

WEE-------Written English Expression Subdivision of the Common Examinations

LFASS-----Literature, Fine Arts, and Social Studies Subdivision of the Common Examinations

SM--------Science and Mathematics Subdivision of the Common Examinations

G.P.A.----Grade Point Average

Description of the Performance of Louisiana's Potential Teachers, Grouped by Level of Certification, on the National Teacher Examinations and on the American College Test

Data were collected to describe the performance of Louisiana's potential teachers, grouped by level of certification, on the NTE and the ACT. As indicated in Table 2, the mean Composite scores on the NTE for Louisiana's potential teachers seeking initial certification at the Elementary Level was 1182.80, and the mean WCET score for this subsample was 560.44. The mean scores on the subdivisions of the WCET were highest in PE ($\bar{X}$=57.72) and the lowest in LFASS ($\bar{X}$=53.29).

Louisiana's examinees seeking initial certification at the Elementary Level had the highest mean ACT scores in the Natural Sciences area ($\bar{X}$=18.06) and the lowest in the Social Studies area ($\bar{X}$=14.80), with a mean ACT Composite score of 16.65. ACT Composite scores and Social Studies scores correlated highest with NTE scores and subscores. For Elementary Level, the correlation between ACT English and WEE was .69; between ACT Mathematics and SM,.62; between ACT Social Studies and LFASS, .68; and between ACT Natural Sciences and SM, .66. ACT Composite scores correlated .80 with WCET and .79 with NTE Composite scores.

The mean Composite scores on the NTE for Louisiana's potential teachers seeking initial certification at the Vocational and K-12 Level was 1155.38, and the mean WCET score for this subsample was 547.99. The mean scores on the subdivision of the WCET were highest in SM ($\bar{X}$=57.30) and lowest in LFASS ($\bar{X}$=52.55).

Louisiana's examinees seeking initial certification at the Vocational and K-12 Level had highest mean ACT scores in the Natural Sciences ($\bar{X}$=18.68), and lowest in Social Studies ($\bar{X}$=15.42), with a mean ACT Composite score of 17.16. ACT Composite scores and Social Studies correlated highest with NTE scores and subscores. For Vocational and K-12 Level, the correlation between ACT English

Table 2

Size, Means, And Standard Deviations of Louisiana's Potential Teachers, Grouped by Level of Certification, on the National Teacher Examinations (NTE) And the American College Test (ACT)

Variable	Elementary Certification			Voc. & K-12 Certification			Secondary Certification		
	NO.	MEAN	STAND. DEV.	NO.	MEAN	STAND. DEV.	NO.	MEAN	STAND. DEV.
NTE Composite	2323	1182.80	157.60	1247	1155.38	147.62	839	1207.36	145.55
NTE Area Exam	2334	621.40	81.77	1259	611.76	79.74	843	599.58	80.13
NTE Common Exam	2340	560.44	82.54	1484	547.99	80.01	858	605.87	76.75
PE	2340	57.72	9.50	1484	54.40	9.40	858	59.40	8.55
WEE	2340	56.16	9.40	1484	55.40	9.66	858	61.40	9.40
LFASS	2340	53.29	9.34	1484	52.55	9.36	858	60.81	9.73
SM	2340	55.97	9.19	1484	57.30	9.08	858	61.84	9.62
ACT English	2186	17.75	4.90	1525	17.52	4.99	752	19.59	4.73
ACT Mathematics	2186	15.47	6.52	1525	16.56	6.41	752	19.17	6.88
ACT Social Studies	2186	14.80	6.89	1525	15.42	6.88	752	19.36	6.68
ACT Natural Sciences	2186	18.06	5.49	1525	18.68	5.65	752	21.34	6.00
ACT Composite	2186	16.65	5.04	1525	17.16	4.97	752	20.04	5.09

CODE KEY

PE------Professional Education Subdivision of the Common Examinations

WEE-----Written English Expression Subdivision of the Common Examinations

LFASS---Literature, Fine Arts, and Social Studies Subdivision of the Common Examinations

SM------Science and Mathematics Subdivision of the Common Examinations

G.P.A.--Grade Point Average

and WEE was .68; between ACT Mathematics and SM, .59; between ACT Social Studies and LFASS, .65; and between ACT Natural Sciences and SM, .62. ACT Composite scores correlated .77 with WCET and .73 with NTE Composite scores.

The mean Composite scores on the NTE for Louisiana's potential teachers seeking initial certification at the Secondary Level was 1207.36, and the mean WCET score for this subsample was 605.87. The mean scores on the subdivisions of the WCET were highest in SM ($\bar{X}$=61.84) and lowest in PE ($\bar{X}$=59.40).

Louisiana's examinees seeking initial certification at the Secondary Level had the highest mean ACT scores in the Natural Sciences ($\bar{X}$=21.34) and the lowest in the Mathematics ($\bar{X}$=19.17), with a mean ACT Composite score of 20.04. ACT Composite scores and Social Studies scores correlated highest with NTE scores and subscores. For Secondary Level, the correlation between ACT English and WEE was .68; between ACT Mathematics and SM, .62; between ACT Social Studies and LFASS, .62; and between ACT Natural Sciences and SM, .65. ACT Composite scores correlated .73 with WCET and .72 with NTE Composite scores.

Data were collected to explore and compare the distribution of Louisiana's students' mean scores, grouped by Level of Certification, in relation to state mean scores computed on the entire sample on the NTE and the ACT.

Weighted mean scores of Louisiana's students, grouped by level of certification, and state means for the entire sample on the Common Examinations of the NTE and its subdivisions were calculated, as indicated in Table 3 and as graphically depicted in Figure 1.

Elementary Level mean scores were higher than the state sample's mean scores in the PE subdivision, and were lower than the state sample's mean scores in the WEE, LFASS, and SM subdivisions of the Common Examinations and on the WCET. The difference was significant at the .02 level for all subdivisions and on the WCET. In other words, Louisiana's Elementary Certification examinees scored significantly above the state sample's mean scores in the PE subdivision

Table 3

Summary of State Mean Scores and Louisiana's Mean Scores, Grouped by Level of Certification, on the Common Examinations of the NTE and Its Subdivisions*

Source of Scores	Number	Mean PE Scores	Mean WEE Scores	Mean LFASS Scores	Mean SM Scores	Mean WCET Scores
State	4,682	227.92	56.88	136.08	143.68	564.82
Elementary Level	2,340	230.88	56.16	133.23	139.93	560.44
Vocational/K-12 Level	1,484	217.60	55.40	131.38	143.25	547.99
Secondary Level	858	237.60	61.40	152.03	154.60	605.87

*Scores reported in Weighted Form

CODE KEY

PE--------Professional Education Subdivision of the Common Examinations
WEE-------Written English Expression Subdivision of the Common Examinations
LFASS-----Literature, Fine Arts, and Social Studies Subdivision of the Common Examinations
SM--------Science and Mathematics Subdivision of the Common Examinations
WCET------Common Examinations of the NTE

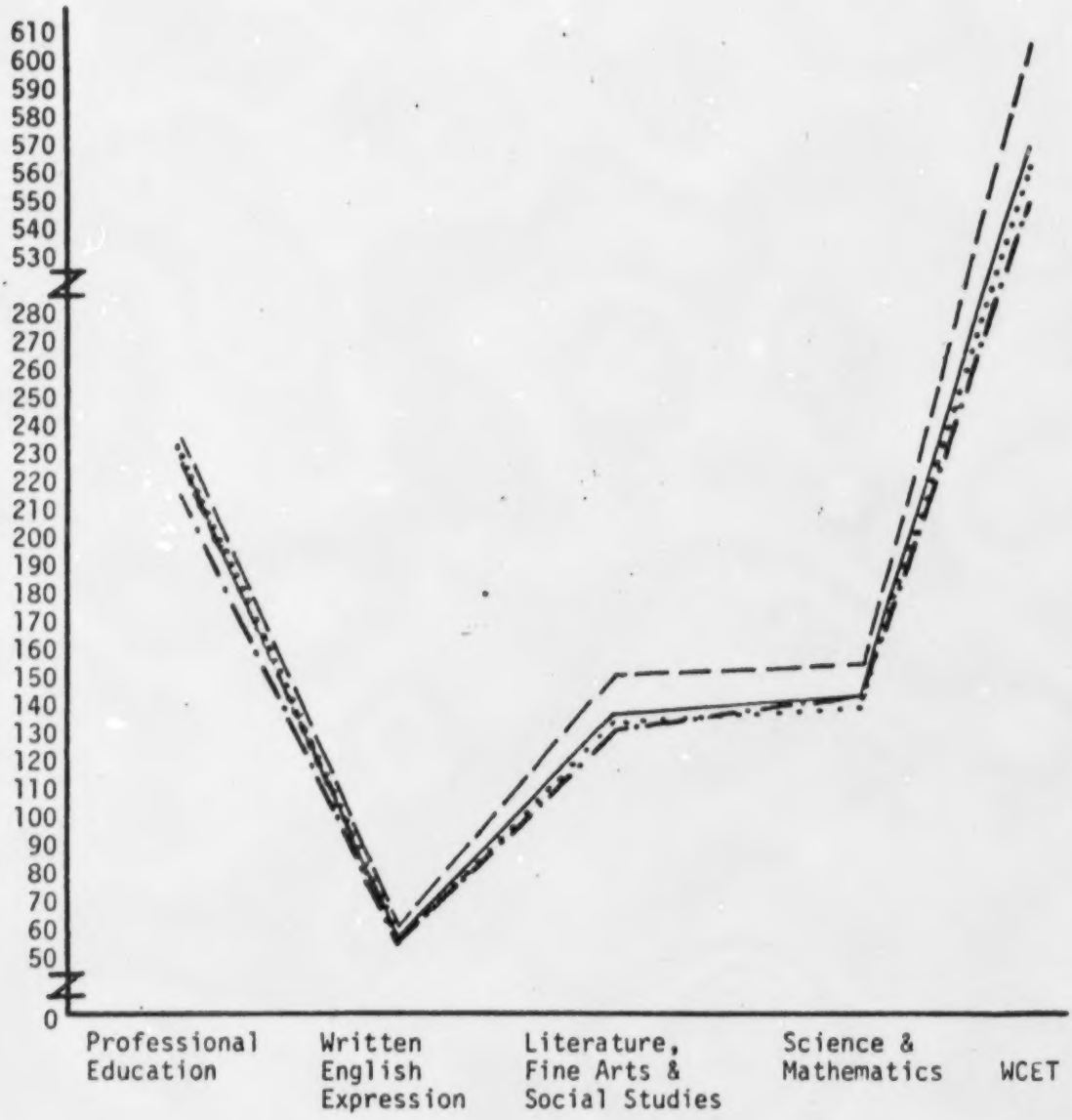

Figure 1

Graphic Depiction of State Mean Scores and Louisiana's Mean Scores Grouped by Level of Certification on the Common Examination of the NTE and Its Subdivisions*

*Scores reported in Weighted Form

—·—·— Louisiana Vocational/K-12 Level

— — — Secondary Level

····· Elementary Level

——— Louisiana

of the Common Examinations, and significantly below the state sample's mean scores in the WEE, LFASS, and SM subdivisions of the Common Examinations and on the WCET.

Vocational and K-12 Level mean scores were lower than the state sample's mean scores in all subdivisions of the Common Examinations and on the WCET. The difference was significant at the .001 level for all subscores except SM. In other words, there is no significant difference in the state sample's mean scores and those seeking Vocational and K-12 Certification in Louisiana on the SM subdivision of the Common Examinations. However, Louisiana's Vocational and K-12 Certification examinees scored significantly below the state sample's mean scores in the PE, WEE, and LFASS subdivisions of the Common Examinations and on the WCET.

Secondary Level mean scores were higher tha the state sample's mean scores in all subdivisions of the Common Examinations and on the WCET. The difference was significant for all subscores and for the WCET at the .001 level. In other words, Louisiana's Secondary Certification examinees scored significantly above the state sample's mean scores on all subdivisions of the Common Examinations and on the WCET.

ACT mean scores for Louisiana's examinees, grouped by level of certification, and state means for the entire sample on the ACT Composite and Area tests were calculated, as indicated in Table 4 and as graphically depicted in Figure 2.

Elementary Level mean scores were lower tha the state sample's mean scores on all areas of the ACT and on ACT Composite. The difference was significant at the .05 level for all Area tests and for ACT Composite. In other words, Louisiana's Elementary Certification examinees scores significantly below the state sample's mean scores on all areas of the ACT and on ACT Composite.

Vocational and K-12 Level mean scores were higher than the state sample's mean scores in ACT Mathematics, and were lower than the state sample's mean

Table 4

Summary of State Mean Scores and Louisiana's Mean Scores Grouped by Level of Certification on the ACT and Its Areas

Source of Scores	Number	Mean English Scores	Mean Math Scores	Mean SS Scores	Mean Natl. Sci. Scores	Mean Composite Scores
Louisiana	4,463	18.0	16.5	15.8	18.8	17.4
Louisiana Elementary Level	2,186	17.8	15.5	14.8	18.1	16.7
Louisiana Vocational/K-12 Level	1,525	17.5	16.6	15.4	18.7	17.2
Louisiana Secondary Level	752	19.6	19.2	19.4	21.4	20.1

CODE KEY

SS--------Social Studies

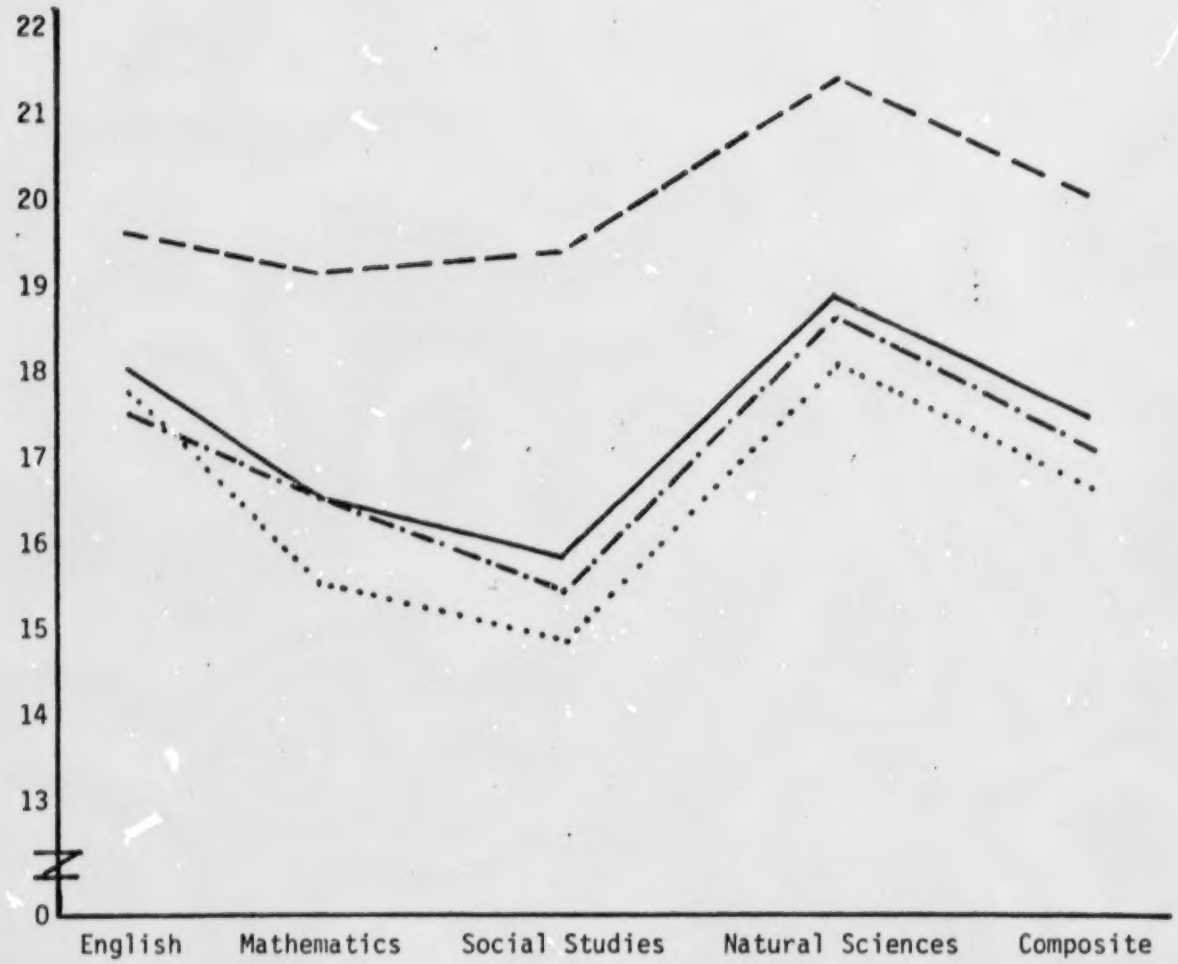

Figure 2

Graphic Depiction of State Mean Scores and Louisiana's Mean Scores Grouped by Level of Certification on the ACT and Its Areas

Elementary Level
Vocational/ K-12 Level
Secondary Level
State

scores in English, Social Studies, and Natural Sciences areas of ACT and on ACT Composite. The difference was significant at the .05 level for English and Social Studies areas of ACT. In other words, there is no significant difference in the state sample's mean scores and those seeking Vocational and K-12 Certification in Louisiana on the Mathematics and Natural Sciences areas of ACT and ACT Composite. Louisiana's Vocational and K-12 Certification examinees scored significantly below the state sample's mean scores on the English and Social Studies areas of ACT.

Secondary Level mean scores were higher than the state sample's mean scores in all areas of ACT and ACT Composite. The difference was significant at the .001 level for all areas and for ACT Composite. In other words, Louisiana's Secondary Certification Examinees scored significantly above the state sample's mean scores on all areas of ACT and ACT Composite.